IN THE CLAIMS

Please amend the claims as follows:

1. (currently amended) A method for selecting an input/output scheduler in a computing system having a plurality of input/output schedulers, said method comprising the steps of:

a) mapping, by an operating system kernel, said plurality of operating system input/output schedulers against respective sets of heuristics, wherein such a set of heuristics includes heuristic variables for characterizing performance states of the computing system, the variables includinge:

a first variable for a number of ~~I/O~~input/output job requests as a proportion of a total number of processes requesting ~~I/O~~input/output jobs;~~,~~

a second variable for a number of read operations as a proportion of total number of read and write operations;~~,~~ and

a third variable for an average disk seek distance of submitted job requests;~~,~~ and

wherein the heuristic sets include:

a first one of the heuristic sets defining a first performance state of the computing system, wherein a certain predefined high proportion of read operations is exceeded for the second variable and a certain predefined average seek distance is not exceeded for the third variable;~~,~~

a second one of the heuristic sets defining a second performance state of the computing system, wherein a certain predefined high level of ~~I/O~~input/output job requests per process is exceeded for the first variable, a certain predefined low proportion of read operations is not exceeded for the second variable, and the certain predefined average seek distance is not exceeded for the third variable;~~,~~ and

a third one of the heuristic sets defining a third performance state of the computing system, wherein the certain predefined high level of ~~I/O~~input/output job requests per process is exceeded for the first variable and the certain predefined low proportion of

read operations is exceeded but the certain predefined high proportion of read operations is not exceeded for the second variable;

wherein the operating system input/output schedulers include first, second and third input/output schedulers, and the mapping includes the operating system kernel:

associating the first one of the heuristic sets with the first scheduler, the second one of the heuristic sets with the second scheduler and the third one of the heuristic sets with the third scheduler; and

wherein the method includes:

b) monitoring performance of said computing system, including a thread of the operating system kernel monitoring performance values of the heuristic variables; ~~and~~

c) selecting one of the input/output schedulers by the operating system kernel thread, wherein the selecting is responsive to the operating system kernel thread determining that a performance state of the computing system is such that values of said monitored heuristic variables match one of said first, second, or third sets of heuristics; and

d) performing a number of input/output operations by the computer system to read to or write from hardware devices in an order determined by the selected one of the input/output schedulers, wherein the performing of the input/output operations in the order determined by the selected scheduler improves input/output performance of the computer system.

2. (previously presented) The method according to claim 1, wherein the operating system input/output schedulers include a fourth input/output scheduler and the method includes:

selecting the fourth input/output scheduler, wherein the selecting is responsive to the operating system kernel thread determining that a performance state of the computing system is such that values of said monitored heuristic variables do not match any of said first, second or third sets of heuristics.

3. (currently amended) The method according to claim 1, wherein the ~~set of~~ heuristic variables include average time for a process to submit successive job requests.

4. (previously presented) The method according to claim 1, including:

scheduling input/output operations responsive to an anticipatory scheduling algorithm by the first input/output scheduler;

scheduling input/output operations responsive to a first in first out algorithm by the second input/output scheduler; and

scheduling input/output operations responsive to a fairness queue algorithm by the third input/output scheduler.

5 – 7. (canceled)

8. (currently amended) A computing system for selecting an input/output scheduler, said computing system comprising:

a processor;

tangible, computer readable memory having instructions for the processor for at least one application; and first, second, and third input/output schedulers,; and having a mapping of said input/output schedulers against corresponding first, second, and third sets of operating heuristics; wherein such a the heuristic sets includes first, second, and third heuristic variables;;

the first variable being for a number of I/Oinput/output job requests as a proportion of a total number of processes requesting I/Oinput/output jobs;;

the second variable being for a number of read operations as a proportion of total number of read and write operations;;

and the third variable being for an average disk seek distance of submitted job requests;;

and wherein a first one of the heuristic sets defines a first performance state of the computing system, wherein a certain predefined high proportion of read operations is exceeded for the second variable and a certain predefined average seek distance is not exceeded for the third variable;;

a second one of the heuristic sets defines a second performance state of the computing system, wherein a certain predefined high level of I/Oinput/output job

requests per process is exceeded for the first variable, a certain predefined low proportion of read operations is not exceeded for the second variable, and the certain predefined average seek distance is not exceeded for the third variable; and

a third one of the heuristic sets defines a third performance state of the computing system, wherein the certain predefined high level of ~~I/O~~input/output job requests per process is exceeded for the first variable and the certain predefined low proportion of read operations is exceeded but the certain predefined high proportion of read operations is not exceeded for the second variable; and

wherein the mapping includes associations among respective first, second and third ones of the heuristic sets and first, second and third ones of the input/output schedulers; and

wherein the computing system further includes:

instructions for an operating system kernel for gathering and analysing heuristics relating to job requests submitted to said operating system kernel by said at least one application, said operating system kernel selecting one of said first, second, and third input/output schedulers responsive to the operating system kernel thread determining that a performance state of the computing system is such that values of said heuristic variables match one of said first, second or third sets of heuristics; and

instructions for performing a number of input/output operations by the computer system to read to or write from hardware devices in an order determined by the selected one of the input/output schedulers, wherein the performing of the input/output operations in the order determined by the selected scheduler improves input/output performance of the computer system.

9. (currently amended) The computing system according to claim 8, wherein the set ~~of~~ heuristic variables includes average time for a process to submit successive job requests.

10. (previously presented) The computing system according to claim 8, wherein the first input/output scheduler is operable to schedule input/output operations responsive to an anticipatory scheduling algorithm, the second input/output scheduler is operable to

schedule input/output operations responsive to a first in first out algorithm and the third input/output scheduler is operable to schedule input/output operations responsive to a fairness queue algorithm.

11-16 (canceled)

17. (currently amended) A computer program product comprising a tangible, computer readable medium having a computer program instructions fixedly recorded therein for selecting an input/output scheduler in a computing system having a plurality of input/output schedulers, said computer program comprising:

computer program instructions ~~code means~~ for mapping, by an operating system kernel, said plurality of input/output schedulers against respective sets of heuristics, wherein such a set of heuristics includes heuristic variables for characterizing performance states of the computing system, the variables includinges:

a first variable for a number of ~~I/O~~input/output job requests as a proportion of a total number of processes requesting ~~I/O~~input/output jobs;~~,~~

a second variable for a number of read operations as a proportion of total number of read and write operations;~~,~~ and

a third variable for an average disk seek distance of submitted job requests;~~,~~ and

wherein the computer program instructions ~~code means~~ for mapping includes:

computer program instructions ~~code means~~ for a first one of the heuristic sets defining a first performance state of the computer system, wherein a certain predefined high proportion of read operations is exceeded for the second variable and a certain predefined average seek distance is not exceeded for the third variable;~~,~~

computer program instructions ~~code means~~ for a second one of the heuristic sets defining a second performance state of the computer system, wherein a certain predefined high level of ~~I/O~~input/output job requests per process is exceeded for the first variable, a certain predefined low proportion of read operations is not exceeded for the second variable, and the certain predefined average seek distance is not exceeded for the third variable;~~,~~ and

computer program instructions ~~code means~~ for a third one of the heuristic sets defining a third performance state of the computer system, wherein the certain predefined high level of ~~I/O~~input/output job requests per process is exceeded for the first variable and the certain predefined low proportion of read operations is exceeded but the certain predefined high proportion of read operations is not exceeded for the second variable; and

wherein the computer program code includes:

computer program instructions ~~code means~~ for monitoring said computing system, wherein the computer program code means for monitoring includes computer program code means for a thread of the operating system kernel monitoring performance values of the heuristic variables; ~~and~~

computer program instructions ~~code means~~ for the operating system kernel thread selecting one of the input/output schedulers, wherein the selecting is responsive to the operating system kernel thread determining that a performance state of the computing system is such that values of said monitored heuristics variables match one of said first, second, or third sets of heuristics; and

computer program instructions for performing a number of input/output operations by the computer system to read to or write from hardware devices in an order determined by the selected one of the input/output schedulers, wherein the performing of the input/output operations in the order determined by the selected scheduler improves input/output performance of the computer system.

18. (canceled)

19. (currently amended) The computer program product of claim 17, comprising:

computer program instructions ~~code means~~ for the first input/output scheduler scheduling input/output operations responsive to an anticipatory scheduling algorithm;

computer program instructions ~~code means~~ for the second input/output scheduler scheduling input/output operations responsive to a first in first out algorithm; and

computer program instructions ~~code means~~ for the third input/output scheduler scheduling input/output operations responsive to a fairness queue algorithm.